

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application:

Claims 1-19 (Cancelled).

20. (Currently Amended) A process for producing an unsaturated carboxylic acid which comprises subjecting an alkane, or a mixture of an alkane and an alkene, to a vapor phase catalytic oxidation reaction in the presence of a catalyst ~~according to claim 1.~~ comprising a mixed metal oxide having the empirical formula



wherein M is an element selected from the group consisting of Te, Sb and Nb,
wherein X is an element selected from the group consisting of Sc, Y, La, Re, Ir, Cu, Ag,
Au, Zn, Ga, Si, Ge, As, Pb, S, Se, Sn, Bi, F, Cl, Br and I, and
wherein, when a = 1, b = 0.01 to 1.0, c = 0.01 to 1.0, d = 0 to 1 and e is dependent
on the oxidation state of the other elements;
with the proviso that, when d = 0, M is selected from the group consisting of Nb and Te,
and
with the further proviso that, when d = 0 and M = Te, 0.01 ≤ b < 0.50 or 0.17 < c ≤ 1.0.

21. (Currently Amended) A process for producing an unsaturated nitrile which comprises subjecting an alkane, or a mixture of an alkane and an alkene, and ammonia to a vapor phase catalytic oxidation reaction in the presence of a catalyst ~~according to claim 1.~~ comprising a mixed metal oxide having the empirical formula



wherein M is an element selected from the group consisting of Te, Sb and Nb,
wherein X is an element selected from the group consisting of Sc, Y, La, Re, Ir, Cu, Ag,
Au, Zn, Ga, Si, Ge, As, Pb, S, Se, Sn, Bi, F, Cl, Br and I, and
wherein, when a = 1, b = 0.01 to 1.0, c = 0.01 to 1.0, d = 0 to 1 and e is dependent
on the oxidation state of the other elements;

with the proviso that, when d = 0, M is selected from the group consisting of Nb and Te, and

with the further proviso that, when d = 0 and M = Te, $0.01 \leq b < 0.50$ or $0.17 < c \leq 1.0$.

22. (New) The process for producing an unsaturated carboxylic acid according to claim 20, wherein said catalyst is produced by a synthesis process comprising:

- (i) admixing compounds of elements Mo, V, M and X, as needed, and a solvent comprising water to form a first admixture containing at least 2 but less than all of said elements Mo, V, M and X;
- (ii) heating said first admixture at a temperature of from 80°C to 150°C for from 5 minutes to 48 hours;
- (iii) then, admixing compounds of elements Mo, V, M and X, as needed, with said first admixture to form a second admixture containing elements Mo, V, M and X, in the respective atomic proportions a, b, c and d, wherein, when a = 1, b = 0.01 to 1.0, c = 0.01 to 1.0 and d = 0 to 1;
- (iv) heating said second admixture at a temperature of from 50°C to 300°C for from 1 hour to several weeks, in a closed vessel under pressure;
- (v) recovering insoluble material from said closed vessel to obtain a catalyst.

23. (New) The process for producing an unsaturated carboxylic acid according to claim 22, wherein said synthesis process further comprises calcining said recovered insoluble material.

24. (New) The process for producing an unsaturated carboxylic acid according to claim 23, wherein said calcination comprises heating said recovered insoluble material to a first temperature in an oxidizing atmosphere, then heating the so-treated recovered insoluble material from said first temperature to a second temperature in a non-oxidizing atmosphere.

25. (New) The process for producing an unsaturated carboxylic acid according to claim 22, wherein said first admixture comprises the elements Mo, M and X.

26. (New) The process for producing an unsaturated carboxylic acid according to claim 25, wherein M = Te.

27. (New) The process for producing an unsaturated carboxylic acid according to claim 21, wherein said catalyst is produced by a synthesis process comprising:

- (vi) admixing compounds of elements Mo, V, M and X, as needed, and a solvent comprising water to form a first admixture containing at least 2 but less than all of said elements Mo, V, M and X;
- (vii) heating said first admixture at a temperature of from 80°C to 150°C for from 5 minutes to 48 hours;
- (viii) then, admixing compounds of elements Mo, V, M and X, as needed, with said first admixture to form a second admixture containing elements Mo, V, M and X, in the respective atomic proportions a, b, c and d, wherein, when a = 1, b = 0.01 to 1.0, c = 0.01 to 1.0 and d = 0 to 1;
- (ix) heating said second admixture at a temperature of from 50°C to 300°C for from 1 hour to several weeks, in a closed vessel under pressure;
- (x) recovering insoluble material from said closed vessel to obtain a catalyst.

28. (New) The process for producing an unsaturated carboxylic acid according to claim 27, wherein said synthesis process further comprises calcining said recovered insoluble material.

29. (New) The process for producing an unsaturated carboxylic acid according to claim 27, wherein said calcination comprises heating said recovered insoluble material to a first temperature in an oxidizing atmosphere, then heating the so-treated recovered insoluble material from said first temperature to a second temperature in a non-oxidizing atmosphere.

30. (New) The process for producing an unsaturated carboxylic acid according to claim 27, wherein said first admixture comprises the elements Mo, M and X.

31. (New) The process for producing an unsaturated carboxylic acid according to claim 30, wherein M = Te.

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §§ 1.97 and 1.98 and MPEP §§ 609 I.A.2. and 609 D., Applicants hereby submit the attached Form PTO-1449, in duplicate, which lists thereon all of the documents officially cited to the United States Patent Trademark Office and officially made of record in connection with Applicants' co-pending parent application, U.S. Serial No. 10/165,892 filed June 10, 2002. Pursuant to MPEP §§ 609 I.A.2. and 609 D., since the present application is a divisional of parent application U.S. Serial No. 10/165,892 and all of the documents listed on the attached Form PTO-1449 were officially considered and made of record in the parent application, it is believed that the attached Form PTO-1449 is sufficient to enable the Examiner in charge of the present divisional application to consider and make officially of record all of the documents listed thereon. Thus, no copies of any of the documents listed on the attached Form PTO-1449 are being submitted to the United States Patent and Trademark Office.

The filing of this Information Disclosure Statement shall not be construed to mean that a search has been made, nor that no other material information, as defined in 37 C.F.R. § 1.56(a), exists. Furthermore, inclusion of a document on the attached Form PTO-1449 is not intended to constitute an admission that any document so disclosed is "prior art" with respect to the present invention unless specifically so stated herein.

In the foregoing circumstances, it is respectfully requested that each of the documents listed on the attached Form PTO-1449 be officially made of record in the present divisional application and printed on the face of any patent which issues therefrom.